DOCUMENT RESUME

ED 384 539 SO 024 707

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TITLE The Politics of City Planning Simulations.
PUB DATE Sep 94
NOTE 22p.; Paper presented at the Annual Meeting of the American Political Science Association (New York, NY, September 1-4, 1994).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *City Government; *Community Planning; *Computer Simulation; Educational Games; Human Geography; Land Use; *Simulated Environment; Teaching Methods; *Urban Areas; Urban Environment; Urbanization; *Urban Planning; Urban Studies
IDENTIFIERS *SimCity

ABSTRACT

This research paper presents an analysis of the computer simulation, SimCity, used for an urban city planning class. The data were gathered by actual use of the simulation and an electronic mail network was employed to secure impressions from users of the simulation. SimCity (developed by Maxis) provides the player with rules of human factors, economic factors, survival factors, and political factors that are both opportunities and constraints to the master planner. In addition, there are numerous maps to monitor land use patterns, zoning, demography, pollution, and other factors as the simulation progresses. The simulation also allows the user to manipulate tax rates and funding levels for the city. The point of the simulation is to duplicate the real world of urban politics with the instantaneous ability of the computer. The attraction of SimCity is the resemblance to the real-life choices that city planners must make to keep the city functioning. Analysis of the limitations of the simulation includes: (1) the over-reliance on mass transit; (2) the tendency to clump zones together then destroy them completely through urban renewal efforts; (3) the premise that the form of local government has little effect on public policy; (4) deficit spending by cities in the simulation is not an option; (5) there is no interaction of the simulation city with the surrounding region; (6) the citizens in the simulation must reside in the city, unable to move to the suburbs, thus creating another level of conflicting bureaucracy; (7) the city residents are completely rational creatures in their calculation of their own economic interest, with no regard for the public interest; and (8) the unlimited role of the mayor in municipal government. Three insoluble problems of the simulation include: (1) SimCity's role of planning in urban development; (2) the neglect of race as one of the most salient features of U.S. urban life; and (3) the underestimation of the social, as opposed to the material, dimensions of city life. (EH)

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THE POLITICS OF CITY PLANNING SIMULATIONS

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Prepared for delivery at the 1994 Annual Meeting of the American Political Science Association, The New York Hilton, September 1-4, 1994. Copyright by the American Political Science Association.

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When kids outgrow Legos and begin to understand that their neighborhoods are fragile and complex ecosystems, it's time for them to explore *SimCity* ($29.95 from Maxis, 800-336-2947). As mayor of a town, a *SimCity* player is responsible for every facet of a city: planning the buildings, developing infrastructures, deciding on the form of government, designating recreational areas, and setting tax regulations. . . . As your children's values and goals get spun into their city, they develop a better idea of who they are and how they fit into the world around them.

--from an advertising supplement to *The Washington Post*, Spring, 1994

THE POLITICS OF CITY PLANNING SIMULATIONS[1]

Kenneth Kolson

Years ago, when Robert Caro's magisterial biography of Robert Moses[2] was first published, I remember reading it with mixed emotions. On the one hand, it reinforced every lesson I tried to convey in my course on urban politics. On the other hand, it taught those lessons in a way that was so vivid, and so engaging, that it made my conventional textbooks and lectures seem hopelessly abstract and lifeless. There was only one thing to do: throw out the old texts and make *The Power Broker* the centerpiece of the course. I redesigned everything from scratch.

Recently, one of the students in my course on the history of city planning (offered in the University Honors Program at the University of Maryland at College Park) ambled up after class. "Have you ever played sin city?" I thought I heard him ask. He corrected me--"*SimCity*" he said, enunciating carefully--and offered a demonstration, during which I was reminded of Caro's book. Here we go again, I thought to myself as I purchased the *Windows* version of the simulation.[3]

"*SimCity* is a game," the user's manual asserts, "but it has found its way into classrooms that teach everything from third grade civics to Master's level courses in city planning."[4] Who, I thought to myself, are these enterprising teachers who have taken *SimCity* into the classroom? I called Maxis and was referred to a woman named Claire Curtin, who assured me that *SimCity* was indeed a widely used teaching tool. Curtin gave me the names of a dozen or so teachers with whom she had worked. I sent out a letter in

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[1]Thanks are due Eric Spross, who talked to me about *SimCity*, gave me bibliographic advice, and led me through the mysteries of the Internet.

[2]*The Power Broker* (New York: Vintage, 1975).

[3]*SimCity* is the product of a California software firm called Maxis. Approximately two and a half million copies have been sold to date.

[4]Michael Bremer, *SimCity for Windows, User Manual* (Orinda, CA: Maxis, no date), p. 4.

which I asked for reflections about the experience of teaching city planning with computer simulations as well as for bibliographic advice. I received a number of letters and phone calls from *SimCity* enthusiasts. None, however, had had any direct experience teaching with urban planning simulations. So I joined a listserv group and sent out the same call to everyone in the group. This time the responses were more helpful; some of them are referred to below.

Since I have not myself used a computer simulation in my course on the history of city planning, and since I have not been able to contact many who have actually done so (I expect this manuscript to flush them out), what follows is not about city planning simulations generally but about *SimCity* (and, to a lesser extent, the upgrade, *SimCity 2000*) exclusively, and it is based largely on my own experimentation ("endless hours of tedious lab work," my teenaged daughter teases), on the reports of a half-dozen or so valuable e-mail correspondents, and on *The SimCity Planning Commission Handbook*[5] Finally, this paper necessarily has much more to do with learning than with teaching.

* * *

SimCity, created by Will Wright for an Orinda, California, software firm called Maxis, is described in the user's manual as a computer simulation that allows you "to design, manage and maintain the city of your dreams."[6] To do so, one chooses the option "Start a New City" and selects the degree of difficulty, which for beginners should be "easy."

Start a New City. At this point the main *SimCity* window, the most prominent feature of which is the city form map, appears on the screen. The map displays a terrain consisting of land that is ready for development (brown), forests that will need to be cleared (green), and water (blue). A small portion of the city form map is displayed on the left-hand side of the screen; this is the work area. The clock starts ticking in January, 1900.

SimCity provides the player with certain *rules* (human factors, economic factors, survival factors, and political factors) that represent both opportunities and constraints to the master planner. *SimCity* also provides basic *tools*--many of them maps--with which to monitor land use patterns, control zoning, dictate what is built and when, and gather up-to-date data on traffic density, demography, power lines, pollution, crime, land value, police and fire protection, and cash flow. Finally, *SimCity* tools allow the user to "set the tax rate

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[5]Johnny L. Wilson, *The SimCity Planning Commission Handbook* (Berkeley: Osborne McGraw-Hill, 1991).

[6]Bremer, *SimCity for Windows. User Manual*, p. 6.

and funding levels for city services."[7]

The fundamental act in developing *SimCity* is zoning. The player clicks on an icon to choose residential, industrial, or commercial zones, and than clicks again on the map, an act that delivers "Sims"--the denizens of *SimCity*--to the site. "When you zone land," the manual explains, you designate where building is allowed. It is the indefatigable Sims who actually build."[8] The Sims are industrious and programmed to build. Put in a power plant--you have a choice between coal and nuclear--and power lines to make your city operational, and the Sims come alive. Connect your zones with roads and the Sims buy cars. If you wait too long to build a police department, there will be a crime wave. If you create too many industrial zones (to keep taxes low), the Sims will complain about pollution. The simulator will generate other pithy messages from the simulator; my favorite is "Either build more roads and rails or get a bulletproof limo." A bar graph called a "demand indicator" helps you maintain a "proper" balance among the three kinds of zones. An evaluation window tells you exactly how you're doing in the polls. *SimCity* may allow you to build "the city of your dreams," but your dreams had better make allowances for the Sims and their own ideas about what makes for urban utopia.

The point of the simulation is to duplicate, by massive and virtually instantaneous numbers crunching, the real world of urban politics in which land-use decisions are taken. The virtues of the game are many. To begin with, *SimCity*--despite its focus on land use and the physical environment--recognizes that a city is much more than bricks and mortar, and that the good city is more than just a beautiful one. As such, *SimCity* discourages architectural determinism.[9] In fact, the architecture in *SimCity* is incidental and completely superficial; one can purchase graphics sets that allow for the creation of ancient or futuristic SimCities. But all are identical underneath--i.e., driven by the same algorithms.

SimCity not only eschews architectural determinism, but single-factor causation of all kinds. And in that respect it is admirably realistic. Any player who comes to *SimCity* with utopian delusions quickly learns to be satisfied with more modest achievements, such as the maintenance of equilibrium. In *SimCity*, as in real life, the environment is incredibly

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[7]Ibid., p. 5.

[8]Ibid., p. 19.

[9]I do not mean to deny that architecture is important, or to assert that it tells us nothing about a people and what they value. On the contrary, I would gladly endorse the following proposition: "It follows logically from the fundamental nature of man himself that the structure of the urban environment should 'portray' human existence: for his identify essentially depends on how he relates to himself, to his fellow-men and to his (built) environment" [Jan Tanghe, Sieg Vlaeminck, and Jo Berghoef, *Living Cities: A Case for Urbanism and Guidelines for Re-Urbanization* (Oxford: Pergamon Press, 1984), p. 64.]

complex. Political success requires that one fully exploit all the resources at one's command, all the while monitoring a mind-boggling number of variables, including natural disasters, that threaten to throw everything out of whack. *SimCity* is a system--a complicated system. As Mark Schone has written with reference to *SimCity 2000*, "programming any more real-world variables into the simulation might make it unplayable."[10]

Consider blight. At some point in one's introduction to *SimCity* one discovers that a city caught in a spiral of lost jobs, reduced levels of public services and revenues--and a declining population--"spontaneously" generates blight. On the screen, it appears as rust-colored little blotches that proliferate rapidly unless you do something about it. What to do? Bulldozing blighted zones and turning the land over to private developers--the urban renewal model that Martin Anderson exposed in his classic, *The Federal Bulldozer*[11] doesn't work, in part because private property operates only in the background in *SimCity*, but also because in *SimCity* it is recognized that blight is not the cause of cancerous urban tissue, but merely one of its symptoms. In *SimCity*, if your city falls on evil times, you need to build infrastructure, attract industry, control crime, or otherwise improve the socio-economic environment. Blight can be controlled in *SimCity*, but it is hard to eradicate. In this respect, *SimCity* is a lot like life.

Load a City. Cities can be saved, which allows for careful variable manipulation and thus for experimentation. Like simulators that teach commercial airline pilots how to land a 747 at Washington National Airport, *SimCity* is interactive. Its appeal, and probably its pedagogical potential, depends on its ability to replicate not only brute facts but also the vagaries of life. Thus, when you are on the verge of a big decision (whether to raise taxes for a mass transit system, for example), you should save your city to disk. If things don't work out, reload the city you saved and try again. Saving your city at regular intervals allows you to try different approaches to damage control, particularly when the simulator unleashes random disasters: in *SimCity*, unless disasters are disabled, there will be fires, floods, plane crashes, tornadoes, earthquakes, and the occasional Godzilla.

Select Scenario. My version of *SimCity* offers the following canned cities and challenges: Dullsville, USA, 1900 (Boredom, easy); San Francisco, 1906 (Earthquake, very difficult); Hamburg, Germany, 1944 (Fire, very difficult); Bern, Switzerland, 1965, (Traffic, easy); Tokyo, Japan, 1957 (Monster Attack, moderately difficult); Detroit, 1972 (Crime moderately difficult); Boston, 2010 (Nuclear Meltdown, very difficult); and Rio de Janeiro, 2047 (Flood, moderately difficult). These are great fun. And because cities can be saved to disk, it is possible to reload one these cities and play without the pre-programmed catastrophes.

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[10]Mark Schone, "Building Rome in a Day," review of *SimCity 2000*, by Will Wright and Fred Haslam (Orinda, CA: Maxis, 1994), in *The Village Voice*, May 31, 1994, p. 50.

[11](Cambridge: M.I.T. Press, 1961).

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In the opinion of this reviewer, two kinds of problems inhere in *SimCity*. This section deals with those that are in principle soluble. In fact, most have already been addressed in *SimCity 2000*.

SimCity is all about land use, and so zoning is the first and most fundamental act. As indicated above, land is designated for either residential, commercial, or industrial use; actual construction is done by the Sims. While the zones are fairly small, there is an incentive--if only because it requires less clicking on the mouse--to clump zones together, making for large single-use districts. While this may quite accurately simulate conditions in real cities, and while zoning has been considered a "progressive" idea through most of the twentieth century, it frustrates the player whose urban utopia consists of the small, mixed-use areas that so many of us have enjoyed in Europe and which have been so celebrated by Lewis Mumford[12], Jane Jacobs, and many others. Jacobs, in *The Death and Life of Great American Cities*,[13] argues that healthy urban tissue is characterized by density, complexity, and adaptability. Zoning is anathema to all three; Jacobs says zoning bespeaks a kind of "turf war" mentality leading to cyclone fences, security guardhouses, "red lining," and the other accoutrements of social stratification and segregation. The ubiquitousness of zoning and bulldozing in *SimCity* bespeaks a simplistic (albeit characteristically American) approach to public works in general, and urban renewal in particular. This has led some to contend that "the game's view of urban renewal, or re-creation only through complete destruction, is not only archaic, but also proposes a potentially dangerous ideal to any impressionable players."[14]

While the makers of *SimCity* encourage one to indulge one's utopian fantasies, limits are imposed on creativity--specifically, one is not allowed to imagine a city devoid of automobiles. While few of us are immune to the charms of real cities without cars--Venice, most spectacularly--the Sims are adamant on the subject of roads, and, as noted below, will use them regardless of their origins or destinations. *SimCity 2000*, the recently introduced upgrade, is more realistic on this score, distinguishing between local arteries and superhighways, but the motorcar continues to be the villain of the piece. There is, as one

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[12]Sometimes it is not easy, however, to distinguish between "organic planning"--which Mumford celebrates, and associates with freedom and the medieval town--and "insensate disorder"--which, as the consequence of private enterprise, he regards as ubiquitous in the West, and deplores. Compare, for example, pages 302-303 with the top of page 454 of *The City in History* (New York: Harcourt, Brace & World, 1961).

[13](New York: Vintage, 1961).

[14]Anonymous, e-mail correspondence with author, April 2, 1994.

correspondent put it, a "pedestrian-only deficiency in this game,"[15] a deficiency that may mirror reality--at least reality in the United States--but, in the degree that it shapes minds, *SimCity* reinforces a reality that, as Lewis Mumford spent a lifetime arguing, stinks.

On the other hand, one of *SimCity*'s virtues lies in its recognition of a truth about highways that Jane Jacobs--ironically, for she was Mumford's rival in so many ways--revealed years ago: if you build it, they will drive. As Johnny L. Wilson explains:

> Even a casual *SimCity* player will soon learn what urban planners and traffic engineers have been discovering for the last few decades--the strategy of widening existing streets and building new major and secondary highways is not a viable solution to traffic congestion. All of this street widening and major construction simply serves to invite even more traffic onto the expanded street network.[16]

While the automobile is endemic to *SimCity*, it is not the preferred mode of transportation. Schone quotes Will Wright to the effect that the game is based largely on a few straightforward premises, such as "mass transit is good."[17] It doesn't take long for players to recognize this truth and to respond by laying track from the start. This is, of course, completely unrealistic. In the real world, particularly in the United States, subways and metro systems have been built by mature cities, and thus--to the extent that right-of-ways have had to be acquired and buildings demolished to make way for mass transit--at great expense. But only mature cities have the *need* for mass transit.

Another premise would seem to be that the form of local government has little effect on public policy. Except for the mayor/city planning czar and the voters to whom he or she must pander there are no apparent political actors, although there is a great deal of political activity programmed in. For example, it is a cardinal rule in *SimCity* never to bulldoze a church. But curiously, the game doesn't spell the lesson out explicitly, and so the naive player might never learn the lesson--except in a Pavlovian sense. As political scientists we know why it is imprudent to bulldoze churches, but we also understand that it makes a difference whether a city has a mayor or a city manager, partisan or non-partisan elections, ward or at-large city council districts, or appointed or elective judges. We may argue about exactly how the form of municipal government affects public policy, but few of us think it is of no consequence.[18]

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[15]Ibid.

[16]Johnny L. Wilson, p. 68.

[17]Schone, p. 50.

[18]One should never pass up a chance to cite Robert L. Lineberry and Edmund P. Fowler, "Reformism and Public Policies in American Cities," *American Political Science Review*, LXI, No. 3 (September, 1967), 701-716.

A fairly recent and rather dramatic example of the proposition that municipal institutions have political efficacy is the argument put forward by James Q. Wilson at an APSA roundtable on the Los Angeles riots.[19] Wilson argued that Los Angeles was more or less unique among major American cities in having adopted, early in the twentieth century, a number of the reforms associated with the progressive movement, and that among these were large councilmanic districts, nonpartisan elections, and the "professionalization" (i.e., extension of civil service protection to the heads) of city departments, such as the police department. His point was that the progressives' attempt to take the politics out of government, and to insulate public policy making from ordinary (and often venal, even corrupt) political processes had succeeded all too well, with the result that the African-American mayor of Los Angeles, as well as the city council and police chief Darryl Gates, were largely unaccountable to the people. Los Angeles had a lot to learn from relatively unreformed cities such as Chicago, Wilson contended.

Even more controversial was Wilson's contention that the official policies of the Los Angeles Police Department dealing with the treatment of suspects who resist arrest--particularly the definition of what constitutes "submission"--have encouraged prolonged use of the night stick. Wilson's point was that the conduct of the four police officers charged, while morally deplorable, might have been legally defensible; they were, he suggested, just following orders. Wilson's hypothesis was offered tentatively in an effort to make sense of a verdict--the acquittal by a Simi Valley jury of charges emanating from the videotaped beating of Rodney King--that had seemed explicable only in terms of brute racism. Wilson's account at least had the virtue of explaining why the rioting proved not to be very "contagious"--that is, why it didn't spread to other cities.

In the matter of municipal finance, too, *SimCity* is completely unrealistic. Real American cities--like real American states and the real national government--have a buy-now, pay-later ethos. We call it deficit spending. But not in *SimCity*. My anonymous e-mail correspondent argued that "The premise behind funding one's city is completely goofy. In what futuristic bureaucratic nirvana will we pay as we go in order to build cities?"[20] In *SimCity*, it is never necessary to float bonds or pay for debt service. Fiscally speaking, *SimCity* is all alone in the world. There is no scramble after federal block grants or air force bases, no lobbying in the state legislature for highway funds, state office buildings, or branches of the state university. There is no revenue sharing.

This isolationism is reflected, too, in the way that way that urban tissue in *SimCity* is completely cut off from the surrounding region. One needn't be a follower of Ebenezer Howard to believe that city and countryside should enhance one another, and that a city

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[19]The 1992 roundtable, entitled "Social Science Looks at the Los Angeles Riots," was chaired by Sidney Tarrow.

[20]Anonymous, e-mail correspondence with author, April 2, 1994.

without gardens or domestic animals, or other reminders of the rhythms of nature, could not offer a very high quality of life. One of my informants put it this way:

> I feel quite strongly that any attempt to simulate the development of a city should also include a strong correlation to that city's bio-region. How much longer can we continue to think of our cities as islands, unattached to their natural environments? *SimCity* seems to think that the city is a wholly self contained entity unaffected [by], and with affect upon its regional environment.[21]

It is also worth noting in this regard that the Sims, unlike real Americans, are not endowed with the capacity of moving to the suburbs and incorporating their own municipalities, thereby seceding from *SimCity*, and thus moving beyond the mayor's sphere of influence. In the real world, the result has been that nearly every American metropolitan area is, notoriously, a "crazy quilt" of overlapping jurisdictions, authorities, and tax havens. In *SimCity*, unlike the real world, the metropolitan region is a political unit.

Then there are the Sims. For better or worse, they are relentlessly rational creatures, at least in their calculation of their own economic interest, as well as in their aversion to high crime rates, pollution, and the like. As such, they provide an excellent antidote to a number of romantic notions about human conduct. And yet we know that in real life the ethos of public-regardingness[22] does a great deal to shape urban politics; happily, for the rest of us, there are large numbers of people who either put "Good Government" ahead of private gain, or equate it with their private interest. In the real world, people still respond to appeals to the public interest, which means that effective political leadership can shape and refine public opinion. People will even tolerate tax increases or other sacrifices when persuaded that the public interest requires it. The algorithms of *SimCity*, however, allow only for *private*-regardingness.[23]

And the Sims, in pursuit of their own interest or pleasure, can be completely mindless. For instance, as Robert Bernard has pointed out, "you can place unconnected (by roads) zones on one area of the city map, and a road system with no destinations or origins on another area of the map, and the Sims will use the roads anyway."[24] They can be

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[21]Ibid.

[22]See Edward C. Banfield and James Q. Wilson, *City Politics* (New York: Vintage, 1963), pp. 38-43.

[23]This also applies to the mayor. In *SimCity 2000*, the appeal to cynicism is quite explicit: "So you're a great mayor. So you build a great city with the power of your mind and the sweat of your mouse-finger. So your citiSims love you. So what? Where are the perks?" [Michael Bremer, *SimCity 2000, User Manual* (Orinda, CA: Maxis, 1993), p. 112.]

[24]Robert N. Bernard, e-mail correspondence with author, April 10, 1994.

stubborn in other ways. Once committed to the proposition that *SimCity* needs a sports stadium, for example, they will never be dissuaded. Note well that to say that the Sims can be mindless and willful is not, of course, to say that *SimCity* is in this respect unrealistic.

This raises a related issue: the role of the mayor in municipal government. While the Sims can be tyrants, the mayor of *SimCity* possesses powers that a real-life mayor--say, the original Mayor Daley of Chicago--could only envy; unlike other local communities, *SimCity* is *not* "an ecology of games."[25] With the snap of one's fingers--or the click of one's mouse--the "mayor" of *SimCity* can seize private property--there are no real property rights in *SimCity*--level acres of land, raise taxes arbitrarily, or build bridges to nowhere. One may be punished by the voters later, but today one is omnipotent--at least within the limits of the budget.[26] There is never any need to wrangle with city council about downtown development plans; there *is* no city council (this has been rectified by *SimCity 2000*). There are no political parties. No municipal employees unions. The local newspaper never prints stories about the mayor's nocturnal indiscretions. No issue is dealt with more simplistically than crime. As one correspondent has noted, in both the original *SimCity* and *SimCity 2000*, "crime is instantly and easily handled by the construction of a police department. It's clearly not that simple."[27] Would that it were.

Then again, an extraordinarily realistic feature of *SimCity* is the way that it

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[25]Norton E. Long, "The Local Community as an Ecology of Games," *American Journal of Sociology*, LXIV, No. 3 (November, 1958), 251-261.

[26]One is reminded of Mumford's celebration of the vision of Ebenezer Howard, whose genius, according to Mumford, lay in the way that he refused to shrink from the concentration of power:

> Above all, by his insight into the corporate and unified structure of a city, Howard called attention to the fact that the growth of a city must be in the hands of a representative public authority; and that the best results could be achieved only if this authority had power to assemble and hold the land, plan the city, time the order of building, and provide the necessary services. no longer were the most essential agents of city development to be left to the individual investor, whether speculator or owner, dealing with individual building lots, individual houses, individual business sites; for no individual exercise of either foresight or public spirit could produce the equivalent of a coordinated and meaningful whole. nor was the city's responsibility to provide for the well-being of all its inhabitants to be recognized only after the maximum amount of disorder had been created by unregulated private effort (p. 521).

Letchworth as *SimCity*!

[27]David Felcan, e-mail correspondence with author, April 3, 1994.

approximates political success in the real world. Novice *SimCity* players often perform as if the simulation were a race against the clock. It's not. Nor is it a game that can be "won" in the way that one wins chess, or *Monopoly*. Positive reinforcement comes in the form of winning the keys to the city (or, in *SimCity 2000*, a statue or a ticker-tape parade), which, as in real life, is achieved mainly by maintaining modest levels of security and prosperity, and by competent damage control.[28] The mayor of *SimCity*, like Dahl's famous Mayor Lee,[29] must be content with victories that are far from total. And even unqualified success raises the question of what one does for an encore. Does one create a new *SimCity* and start all over again? Does one graduate to *SimEarth*[30]--that is, run for higher office? Or does one continue playing the same game one until one manages finally to fail, a la Teddy Kollek? Politics is an unusual career.

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Other problems inherent in *SimCity* are ultimately insoluble. Of these, I wish to focus on three: *SimCity*'s exaggeration of the role of planning in urban development; its neglect of one of the most salient features of American urban life--race; and its underestimation of the *social*--as opposed to the *material*--dimensions of city life.

Planning and Private Development. *SimCity* is a city planning game; in a more realistic account of city planning in the United States, developers and real-estate speculators would loom large. As Schone has put it, "Wright's toy [i.e., *SimCity*] overstates the importance of urban planners and underplays the role of developers, pressure groups, preservationists, etc."[31] The consequence is that *SimCity* teaches the virtues of state planning. It is undeniable that growth is more orderly when strict controls are placed on private enterprise. In Europe, the New Towns movement[32] has guaranteed the success of certain

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[28]Schone is more blunt: "If you want your Sim citizens to throw you a parade, you'd best push land values up so high that poor folks leave town" (p. 50). Crassly put, but he has a point.

[29]Robert Dahl, *Who Governs?* (New Haven: Yale University Press, 1961).

[30]Another Maxis game.

[31]Schone, p. 50.

[32]Mumford considered the post-World War II New Towns movement to be the last best hope of mankind:

> In two countries, Sweden and England, an even larger effort was made to conceive a new urban pattern that would break away from the automatic concentration and the equally automatic spread of the big city. In the case of England's New Towns, the

communities, thus allowing them the luxury of early investment in expensive infrastructure. In France, for example, the national government is regulating the growth of Paris by building and developing a number of new towns, each strategically situated with rail links to Paris.[33] In 1980, the author visited one of them--Evry New Town, which lies about 25 miles south and east of Paris. At the time the train station seemed completely out of scale--a colossus in a Lilliputian world. A decade and a half of planned--i.e., state-subsidized--development has of course justified the original scale of the project; the new town has grown into its train station the way that a puppy grows into its paws.

Planning ahead *is* in many ways economical. If you know your city will succeed, why not bury the power lines as soon as the site has been cleared from forest or desert, or reclaimed from the sea? Why not just build a nuclear power plant instead of starting with coal? Of course, the builders of real American cities have not for the most part had the luxury of burying their power lines or laying track for their light-rail systems at the time when it would have been most economical--at the beginning. Another case in point--one in which Will Wright might find inspiration--is the Pneumatic Refuse Conveying (P.R.C.) System that has been implemented in several of the new planned communities outside Stockholm.[34]

> feasibility of directing and controlling urban growth in relatively self-contained and balanced communities, with a sound industrial base, was amply demonstrated. . . . The very existence of the New Towns of England and Sweden, though they have not yet altered the dominant metropolitan pattern, still bears witness to the possibility of a different mode of urban growth. That small sign may be the harbinger of a larger transformation (pp. 557, 528).

[33]For a good overview, see Peter Hall, *The World Cities* (New York: McGraw-Hill, second edition 1977), pp. 53-86.

[34]Consider the following account, reprinted from *Kista, Husby, Akalla: A Digest for Planners, Politicians, and Critics* (Stockholm: Stockholm Information Board, 1976):

> The amount of refuse currently produced in Stockholm is estimated at about 360 kg. per household and year. It is increasing at an annual rate of about 2-3%. With manual refuse collection, the main expenses are the variable costs--for collecting, cleaning, and local transportation. The costs of manual refuse collection increase, therefore, with rising refuse volume and higher wages. With the P.R.C. system, it is the fixed costs which predominate. An economic comparison for Norra Järva shows that conventional refuse collection would be cheaper than P.R.C. for the first few years, about the same for the sixth or seventh, after which the balance would tilt in favour of the P.R.C. system. By the tenth year, the annual cost for the P.R.C. system is estimated at about Skr.320 per household against Skr.340 for conventional refuse handling. . . . Refuse will be conveyed through large-bore steel pipes by an air current traveling at about 20-25 metres per second. With present technical methods,

So, looked at one way, the planning bias of *SimCity* renders it inapplicable to the history of urban development in the United States, where the cacophony of private schemes has largely drowned out public plans. But looked at another way, the planning bias of *SimCity* conveys an important lesson: the infrastructure problems our cities have had to deal with result in part from the fact that in the United States the success of particular cities, with few exceptions, has never been guaranteed by the state (although, to be sure, public policy counts for a lot). At all stages of the life cycle, our cities not only have been shaped by private enterprise within, but have been engaged in heated competition without. Whether one views this as the rigors of capitalism or a mad carnival of roguery, the consequence can be seen everywhere; the American landscape is littered with failed New Jerusalems and Zion Cities, and every Kansas City has its Leavenworth, every Chicago a Superior, Wisconsin.[35]

Race and the American City. Mark Schone is surely right to note that the single most curious, and most unrealistic, feature of *SimCity* is the absence of race and ethnicity, which he attributes to Will Wright's wish to "avoid controversy."[36]--a profitable instinct for a capitalist. But the result is that the player for whom an urban utopia would require rich cultural diversity, the economic equality of the races, and no discernable pattern of residential segregation by race or ethnic group, would play *SimCity* in vain. Since the Sims come in only one racial flavor, there can be no map to show the distribution of different races through the city, and no way to correlate race with income; by definition, there can be no race riots among the canned disaster scenarios.[37]

The result is that *SimCity* is bound to be a less than satisfying representation of real American cities. It is hard to say, however, how seriously the absence of race actually

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> refuse can be transported 1.5 to 2.5 km. within the limits of the capacity of one reception station. . . . The suction is produced by high-pressure fans or turbo-compressors, which are started automatically at predetermined times two or three times every 24 hours. The refuse is conveyed by air current to a refuse separator in the station. At the station, there is a compactor which forces the refuse into a container, which is then transported to the plant by a special vehicle (p. 23).

[35]The standard sources on urban development in the United States are Charles N. Glaab and A. Theodore Brown, *A History of Urban America* (New York: Macmillan, third edition, 1976) and John W. Reps, *The Making of Urban America* (Princeton: Princeton University Press, 1965). The role that lunacy played in this story is summarized rather nicely in the story of George Francis Train, *My Life in Many States and in Foreign Lands* (London: 1902).

[36]Schone, p. 50.

[37]Although it is worth noting that in *SimCity 2000* there are "riots" caused by "heat, crime and unemployment," or by long power blackouts (Brember, *SimCity 2000, User Manual*, p. 122).

impairs *SimCity* as a simulator of urban development. Schone asserts that the racial homogeneity of the Sims means that it is impossible to simulate "inner-city decay," which he characterizes as a function of "white flight" exacerbated by "city-hating suburbanites" and Reaganomics, in which "cities didn't matter."[38] Maybe. But the hypothesis built into *SimCity*--in which inner cities can, but will not inevitably, decay--is that when government spends more than it takes in, taxes have to rise, which means that investment declines and the tax base erodes, resulting in increasing joblessness and added pressure on government. People without choices--meaning people without skills--end up concentrated in those few places where they can afford to dwell. It's a vicious circle, fully accounted for in *SimCity* without any reference to race or racism.

Mr. Wright's motives can be known only to himself. But it could be that he was persuaded by Edward C. Banfield's account of inner-city decay in his infamous book, *The Unheavenly City*.[39] There Banfield describes conventional wisdom on the subject:

> The most conspicuous fact of life in the city is racial division. A hundred times a day there are confrontations between black and white and almost every day an explosion turns part of some city into a battleground. The residential suburbs are mostly white--often "lily-white"; the central cities, especially the older, more deteriorated parts, and above all their slums, are predominantly or entirely black. Many observers see little reason to hope for improvement. The city, they say, has always exploited, humiliated, and degraded its immigrant groups. But whereas all the others eventually have been able to escape their oppressors by joining them, the Negro, marked as he is by skin color, can never do so. For him, in this view, the city is degradation without hope.[40]

The view Banfield puts forth is "altogether different from this one."[41] Banfield elaborates:

> Today the Negro's *main* disadvantage is the same as the Puerto Rican's and Mexican's: namely, that he is the most recent unskilled, and hence relatively low-income, migrant to reach the city from a backward rural area. The city is not the end of his journey but the start of it. He came to it not because he was lured by a cruel and greedy master but because he was attracted by job, housing, school, and other

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[38]Schone, p. 50.

[39](Boston: Little, Brown & Company, 1963). Curiously, *The Unheavenly City* is cited in the user's manual for *SimCity 2000*, although it was not in the orginal *SimCity* bibliography. All references in this manuscript are to the revised version published a few years later: *The Unheavenly City Revisited* (Boston: Little, Brown & Company, 1974).

[40]Ibid., p. 77.

[41]Ibid.

> opportunities that, bad as they were, were nevertheless better by far than any he had known before. Like earlier immigrants, the Negro has reason to expect that his children will have increases of opportunity even greater than his.[42]

SimCity, in short, is politically incorrect. Schone himself observes that at some point in the 1970s causal modeling was abandoned by the planning profession: "they didn't like what the sophisticated models told them."[43]

The Social and Material Dimensions of City Life. My hunch is that many professional city planners, and probably many scholars as well, came to urban studies out of an interest in architecture and with more or less well developed aesthetic sensibilities. Certainly, my own utopian yearnings manifest themselves in visions of buildings--buildings and people.[44] A city exists in space, it is three-dimensional, and it is a social work of art. To be sure, Plato is persuasive when he demonstrates that building a city--if only mentally, or linguistically--requires asking about the meaning of justice and the good, and it probably means posing many other questions that probably never would occur to an engineer, or to those city planners, in the tradition of Hippodamos, who are obsessed with physical form. But for most of us, any ideal city we might conjure up in our fevered imagination--Eutopia, Amaurote, Erewhon, or Broadacre City--is conceived as a built environment, much more so than as a set of laws or socio-economic structures.

The power of these architectonic visions is such that we are easily led to believe that judgments about cities, and about whether they are good or bad places to live, are essentially aesthetic. I, for one, would not dispute the assertion that Imperial Rome and Renaissance Florence were beautiful cities. That the former should have produced Caligula, and the latter Savonarola, reminds us that grandeur can mask depravity. To anyone who would suggest that in the post-modern age we have outgrown simple-minded architectural determinism--the "edifice complex" of the City Beautiful movement, for example--I would cite the hoopla of recent years equating the Inner Harbor with the success of Baltimore, or suggesting that a new ballpark will be the catalyst for the rebirth of postindustrial Cleveland. There are not a few among us who still believe that a city *is* its skyline.[45]

Cities are more than just bricks and mortar, and they are more than just bricks and

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[42]Ibid., p. 78.

[43]Ibid.

[44]See, for example, Robert Fishman, *Urban Utopias in the Twentieth Century* (New York: Basic Books, 1977).

[45]Then again, skylines are not uninteresting. See, for example, chapter 5 of Spiro Kostof, *The City Shaped: Urban Patterns and Meanings Through History* (Boston: Little, Brown and Company, 1991).

mortar over time. Thus Lewis Mumford, who argued contrary to conventional wisdom that the medieval city was not unplanned, contended that it

> was above all things, in its busy turbulent life, a stage for the ceremonies of the Church. . . . No sedentary student, viewing this architecture in pictures, no superficial observer, taking up a position and attempting to plot out axes and formal relationships, is in a state to penetrate this urban setting even in its purely esthetic aspect. For the key to the visible city lies in the moving pageant or the procession: above all, in the great religious procession that winds about the streets and places before it finally debouches into the church or the cathedral for the great ceremony itself. Here is no static architecture.[46]

The same point has been made by John Brinckerhoff Jackson about the modern American city. In a review of Jackson's most recent book, for example, Witold Rybczynski shows that food courts and trailer parks and gas stations tell us much about ourselves. Rybczynski reminds us that our sense of place, our

> actual sense of physical belonging, is not mainly conditioned by architecture and urban design but by shared daily, weekly, or seasonal events, that is, by a sense of time. . . . Spaces are identified not so much by their physical features as by the events that take--and took--place in them. One might say, following Jackson, that the homecoming game matters more than the stadium, the parade more than the street, the fair more than the fairground.[47]

Of course, it is not always so easy to infer the meaning of these events from architectural evidence, and that is particularly so in the case of ancient or remote civilizations, nor will it be easy for our descendants to "read" our civilization from our archaeological heritage--styrofoam and all. The point has been made famously, and hilariously, by David Macaulay in his *Motel of the Mysteries*.[48]

The point is that *SimCity*, whatever its virtues, reinforces the idea that a city essentially is a physical thing, a *built* environment where people pursue their private interests, rather than a community formed around a shared conception of the common good. Thus no version of *SimCity*, no matter how refined, will ever be able to depict Sparta, or why it had

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[46]Lewis Mumford, *The City in History* (New York: Harcourt, Brace & World, 1961), p. 277.

[47]Witold Rybczynski, "Mysteries of the Mall," review of John Brinckerhoff Jackson, *A Sense of Place, A Sense of Time* (New Haven: Yale University Press, 1994), in *The New York Review of Books*, LXI, No. 13 (July 14, 1994), 32-33.

[48]David Macaulay, *Motel of the Mysteries* (Boston: Houghton Mifflin, 1979).

no need of walls--let alone the medieval city, the virtues of which were largely ethereal, and the physical properties of which were often vestigial.[49]

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Of the problems associated with *SimCity* that I have judged to be "soluble," most have in fact been addressed by *SimCity 2000*. At the risk of sounding like a shill for Maxis, let me summarize some of the more impressive features of the upgrade that have not already been mentioned in this paper. Zoning is far more subtle, allowing for some mixture of uses. You can build bus depots and expressways. You can found a college, a zoo, or a marina. Municipal finance is much more sophisticated, involving the floating of bond issues and requiring the payment of interest. You can legalize gambling, if you like, provided you can get it through city council. You can build a military base, tunnels, elementary schools--even one of Paolo Soleri's "arcologies." You can pass ordinances that address the quality of life in various ways. *SimCity 2000* has its own climate, and weather reports can be monitored in the newspaper, to which you will want to subscribe: "The different papers (once your city is big enough to have more than one) will have different angles on stories, so you may want to read through more than one."[50] In sum, to quote a reviewer who admits to being "addicted" to the original game:

> *SimCity 2000* has enough new features to justify readdiction. Now, time itself becomes a factor: As new technologies, such as desalinization and fusion power, are invented, the tools to use them pop up in your toolbox. The terrain (completely editable) has hills and valleys, and you can zoom into and completely rotate the 3-D model of your city. You have to dig in the dirt to lay pipes and construct subways. Your constituent Sims demand education and health care, and their IQs drop if you don't build the enough libraries and museums. If they don't like where you laid the

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[49]It has been observed that with the demise of the ancient world went a loss of citizenship, for which people were compensated by, in effect, growing souls. In *The City in History*, Mumford makes a similar point when he argues that the Christian monastery was "a new kind of polis"(p. 246), and that the monastery revived the ancient polis, but an "etherialized" polis in which physical form was of little consequence:

> Not merely were the old Roman buildings spiritually detestable, with their pagan images and symbols: many of them became functionally worthless, like the theater, the arena, and bath, because they contradicted the whole Christian way of life. Only the old basilicas and temples, built to hold many people, were easily converted into shelters for Christian congregations. . . . But the baths were no longer used as baths, nor the arenas as arenas. Their emptiness foretold their eventual dilapidation (p. 244).

[50]Bremer, *SimCity 2000, User Manual*, p. 116.

train tracks, the Sims will drive cars; if they don't like your judgment (or lack of it), they'll vote you out of office or move to a neighboring city.[51]

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Although the mayor is less omnipotent than in the original version, the office remains unrealistically powerful. Aside from that, it seems to me that *SimCity 2000* has addressed many of the more or less technical problems that led one of my e-mail correspondents to refer to *SimCity* as "weak and buggy."[52] Of the three more fundamental problems that I see in *SimCity*, one--the absence of race--turns out to be a problem only for those who reject Banfield's account of the "urban crisis." The other two problems must be considered endemic to a game that ultimately is all about land use and physical planning. All of this is another way of saying that one can learn a great deal about the development of cities from *SimCity*. Its potential as a resource in *teaching* is a separate issue, to which I will now turn.[53]

It might make sense first to summarize some of the very disparate information I was able to gather about the use of computer simulations in teaching about city planning. I was told about *CitySpace*, a virtual city model built by kids, apparently installed as an interactive exhibit at the Exploratorium in San Francisco. A former student of Roger Miller's at the University of Minnesota reported that students were asked to critique *SimCity* in a course called "Geographical Perspectives on Urban Planning I." Jerry Schneider described a computer program of his own device, called "Director," that has students play the role of transportation department director of a small city. Schneider reports that the game, which sounds very sophisticated, works well until students discover that the trick is to raise taxes sky high and spend it as fast as they can. "Once this fact becomes known," he relates, "the challenge disappears."[54] Most fascinating of all is the California Urban Future Model, which has been developed by the Institute of Urban and Regional Development at the University of California, Berkeley. The remarkable thing about this model is that it not only uses real data, drawn from the San Francisco metropolitan region, but real *players*--i.e., local government officials.[55]

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[51]Lisa Seaman, "Cancel My Appointments--'til the Year 2000," *Wired*, II, No. 2 (February, 1994), p. 107.

[52]Robert N. Bernard, e-mail correspondence with author, April 10, 1994.

[53]Thanks are due Sam Spero of Cuyahoga Community College, who talked with me about the problems associated with bringing advanced technology into the classroom.

[54]Jerry Schneider, e-mail correspondence with author, April 1, 1994.

[55]Described to me by e-mail correspondent Ming Zhao, April 2, 1994.

As for *SimCity*, few of my informants seemed to think it has much pedagogical potential. "We used *SimCity* in our class," Robert N. Bernard reported, "to show the graphical capabilities of commercially available games, but also used it to show its inherent weaknesses. I am surprised that any program would use it as a teaching tool."[56] This is consistent with Schone's observation in *The Village Voice* that *SimCity* "is widely used in urban planning courses, but as a graphic tool, or to get technophobes comfortable with computers, not as a viable model. It's not in danger of polluting impressionable minds, because it's rarely introduced without caveats.[57]

I'm all for entering caveats. But it seems to me that *SimCity* ought in fact to be an immensely valuable supplement to a course on urban politics or the history of urban planning. I can imagine, for instance, passing out diskettes on which a particular city has been saved--say, the Bern scenario on traffic congestion--and asking my students to experiment with it as homework. Perhaps I would ask them to write a short paper on the experience, which could in turn be discussed in class. I do not, however, intend to throw away my syllabus and start over.

The caveat I would most want to enter has less to do with *SimCity* than with the way that sophisticated technology has, over and over again, been oversold. Perhaps I feel this way because of fairly vivid memories--even thirty years after the fact--of an art history course in which the slides invariably were upside down, of a mathematics course in which the instructor wrote formulas on the blackboard and then stood in front of them, of not properly learning a foreign language despite countless hours in a high-tech language lab. But imaginative use of new technology surely can allow us to engage students in new ways, adding variety and new enthusiasm to our courses, which must be intellectually and pedagogically sound to begin with.

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[56]Robert N. Bernard, e-mail correspondence with author, April 10, 1994.

[57]Schone, p. 50.

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